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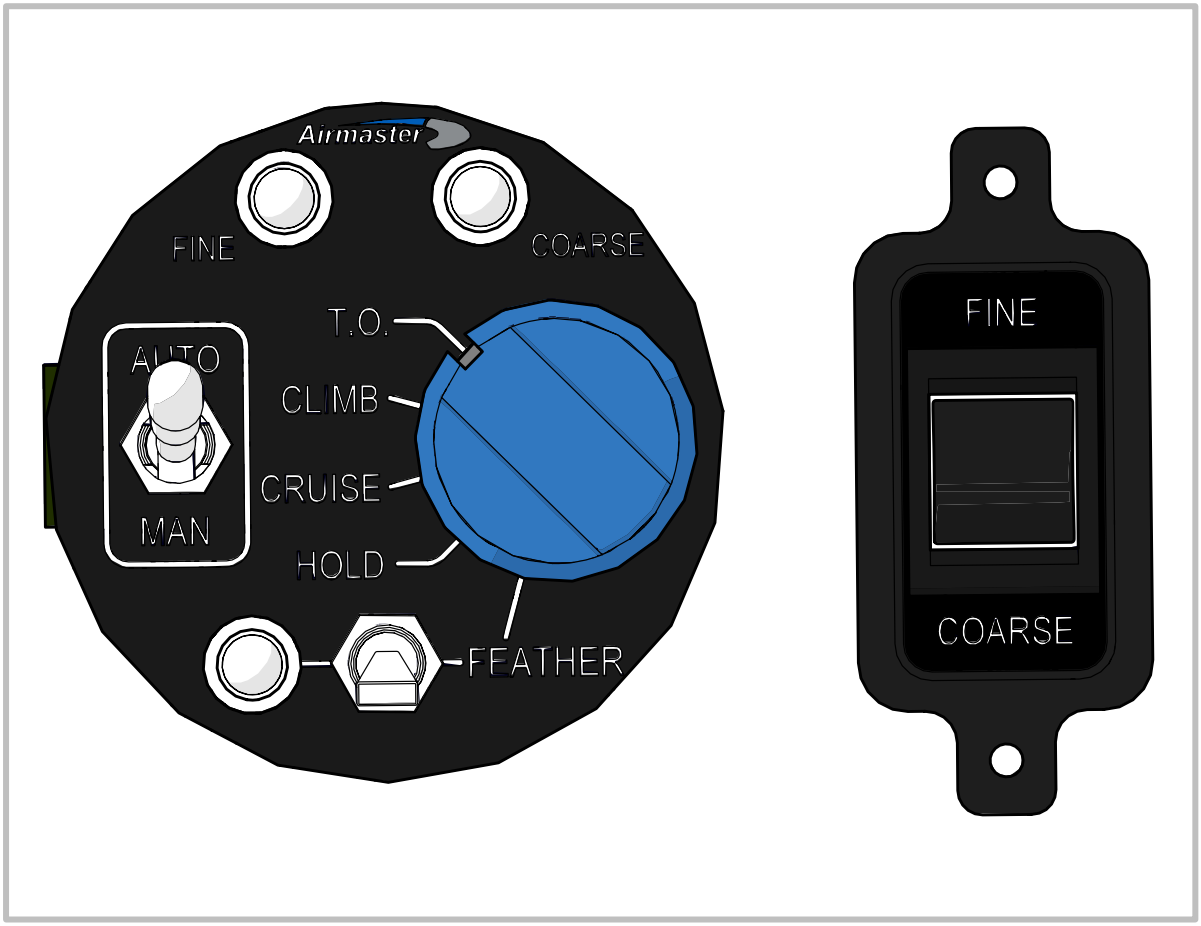
ASI-7-3-2

FAULT-FINDING

GUIDE



SUBJECT:	
Troubleshooting	
ASSEMBLY NO:	**APPLICABILITY:**
AP-xxx	All propeller models

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1. TOPIC

1.1 Introduction

This document provides guidance on troubleshooting possible faults that may occur for an Airmaster propeller system. Symptoms are listed and recommended checklists are provided.

1.2 Open Circuit Alarm

1.2.1 Symptoms

- Refer to open circuit symptoms outlined in ***ASI-7-3-1***.

1.2.2 Checks

STEP	CHECK	☑
1.	Inspect electrical wiring to the propeller for signs of damage, corrosion, moisture ingress or loose connection.	☐
2.	Inspect sensor-brush block (and slipring) in accordance with procedure ***ASI-7-4-1***.	☐
3.	If open circuit alarm is persistent on the ground, refer to troubleshooting procedure ***ASI-7-3-3***.	☐
4	Check if propeller (PC motor type) is affected by service bulletin ***APL-SB-18***, or service bulletin ***APL-SB-22***.	☐

1.3 Over-Current Alarm

1.3.1 Symptoms

- Refer to over-current circuit symptoms outlined in ***ASI-7-3-1***.

1.3.2 Checks

STEP	CHECK	☑
1.	Refer to troubleshooting procedure ***ASI-7-3-4***.	☐

1.4 Vibration

1.4.1 Symptoms

- Unusual shaking, shuddering or pulsing of the propeller.
- Unusual noises from the propeller.
- May occur at specific RPM ranges.
- Loosened fasteners (broken torque-seal may indicate this).

1.4.2 Checks

STEP	CHECK	☑
1.	Confirm propeller is dynamically balanced.	☐
2.	Check blades are seated correctly by performing the installation checks covered in procedure ***ASI-4-6***.	☐
3.	Inspect blades for damage.	☐
4.	Check hub mounting bolts are torqued correctly and secure.	☐
5.	Check blade angles are within 0.1° of each other.	☐
6.	Remove blades from hub and check there is not excess quantity of grease inside hub.	☐

1.5 Interference (Noise)

1.5.1 Symptoms

- Noise in headset.

1.5.2 Checks

STEP	CHECK	☑
1.	Check slipring and brushes are clean and free from grease, oil, or debris.	☐
2.	Ensure extension loom cable to controller [CN2] is properly earthed.	☐

1.6 Grease Seepage

1.6.1 Symptoms

- Excessive grease emanating from propeller blades. This may be observed inside the spinner cone, on the blades or on the aircraft (e.g. screen).

> ⓘ *Note*
> *A small amount of grease seepage is normal after the propeller is first run up, or after periodic servicing when the propeller is regreased.*

1.6.2 Checks

STEP	CHECK	☑
1.	Identify location of grease emanation: [A]: Between blade retention nut and hub bore (external o-ring). [B]: Between blade retention nut and blade ferrule (internal seal).	☐
2.	[A]: Check blades are seated correctly by performing the blade installation checks covered in procedure ***ASI-4-6***.	☐

3.	[A]: For AP332S blade models, check records if Service Bulletin ***APL-SB-18*** is applied.	☐
4.	[A]: Check o-rings are fitted properly. Check for damage to o-ring and sealing surfaces.	☐
5	[B]: Contact Airmaster support for repair (*support@propellor.com*).	☐

1.7 Misinterpretation of Pitch Stops or Incorrect Pitch Adjustment

1.7.1 Symptoms

- Random or otherwise incorrect controller indications.
- Pitch change mechanism inoperable or operates incorrectly. No fault alarms observed.
- Pitch change mechanism fails to stop at pitch limit stops or does so incorrectly/inconsistently.

1.7.2 Checks

STEP	CHECK	☑
1.	Check brushes are tracking centrally across sliprings and do not overlap.	☐
2.	Check slipring and brushes are free of grease, oil, or debris	☐
3.	Check pitch cams are correctly configured and have not drifted.	☐
4.	Check wiring inside hub is correct.	☐

1.8 Propeller not Reaching Take-off RPM

1.8.1 Symptoms

- Propeller not attaining take-off RPM (allowing for deadband tolerance).

1.8.2 Checks

STEP	CHECK	☑
1.	Check the propeller's fine pitch limit stop is correctly set in accordance with procedure ***ASI-5-3-2***.	☐
2.	Check preset RPM values programmed for controller are correct (i.e. take-off, climb, cruise settings).	☐
3.	Check aircraft tachometer is accurate.	☐
4.	Check air intake is located in an area where it can draw cool air consistently not interrupted (e.g. near turbo equipment).	☐

1.9 Unstable Propeller Response

1.9.1 Symptoms

- 'Sluggish' propeller response i.e. RPM adjustments are slow. This may be observed as consecutive orange flashes of either the fine or coarse lamp as the propeller continually attempts to adjust pitch in the same direction.

- Propeller is 'hunting' i.e. RPM fluctuates (continually overshoots). This may be observed as alternating orange flashes of the fine and coarse lamps as the controller continually makes automatic pitch adjustments in opposite directions.

1.9.2 Checks

STEP	CHECK	☑
1.	Check the propeller's pitch limit stops are correctly set in accordance with procedure ***ASI-5-3-2***.	☐
2.	Check pitch cams haven't drifted from their previously set position.	☐
3.	Check controller indications and confirm that no alarms are displayed (e.g. open circuit or no speed signal).	☐
4.	If applicable, download controller logfiles in accordance with procedure ***ASI-7-2-4.*** Send to Airmaster support (*support@propellor.com*) for advice and review.	☐
5.	Otherwise, save parameter file from the controller in accordance with procedure ***ASI-7-2-1*** and send to Airmaster support for review.	☐

1.10 Loss of Hub Calibration (DSD Models only)

1.10.1 Symptoms

- FEATHER or BETA lamp (as applicable) double-flashes red on AC300 controller (applicable for DSD propeller models only).

1.10.2 Checks

STEP	CHECK	☑
1.	Re-calibrate hub in accordance with the procedure outlined in ***ASI-5-4***.	☐
2.	Check 'verify tolerance' value is set to 1 within the Hub calibrator program.	☐
3.	Check fine pitch cam is securely restrained with locknut and isn't drifting.	☐
4.	Check AC300 controller firmware is latest version. Update as required in accordance with procedure ***ASI-7-2-2***.	☐
5.	Check DSD hub firmware is latest version. Update as required in accordance with procedure ***ASI-7-2-3***.	☐